



115

Stage Operations

Phil Jordan, CVE

Venue Management School – Year 1
June 2026

Action Item Form

Don't forget to make notes on your Action Item form.



Venue Management School

MY ACTION ITEMS

December 2021

Year 1

Name: _____ Class: _____

Use this form to record one or two items that you can take action upon that are inspired by the presentations and courses. Your completed Action Items form will then serve as a follow-up "TO DO" list for when you return to your venue.

101 Labor Relations Antony Bonavita

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ALL
THE
WORLD'S
A
STAGE



William Shakespeare

Goals

- Awareness
- Impact
- Decisions
- Empowerment
- Resources

*“There is no such thing as a **dumb** question”*



ACOUSTICS 101

Acoustics

*The study of the
performance
of sound energy*

Sound is affected by:

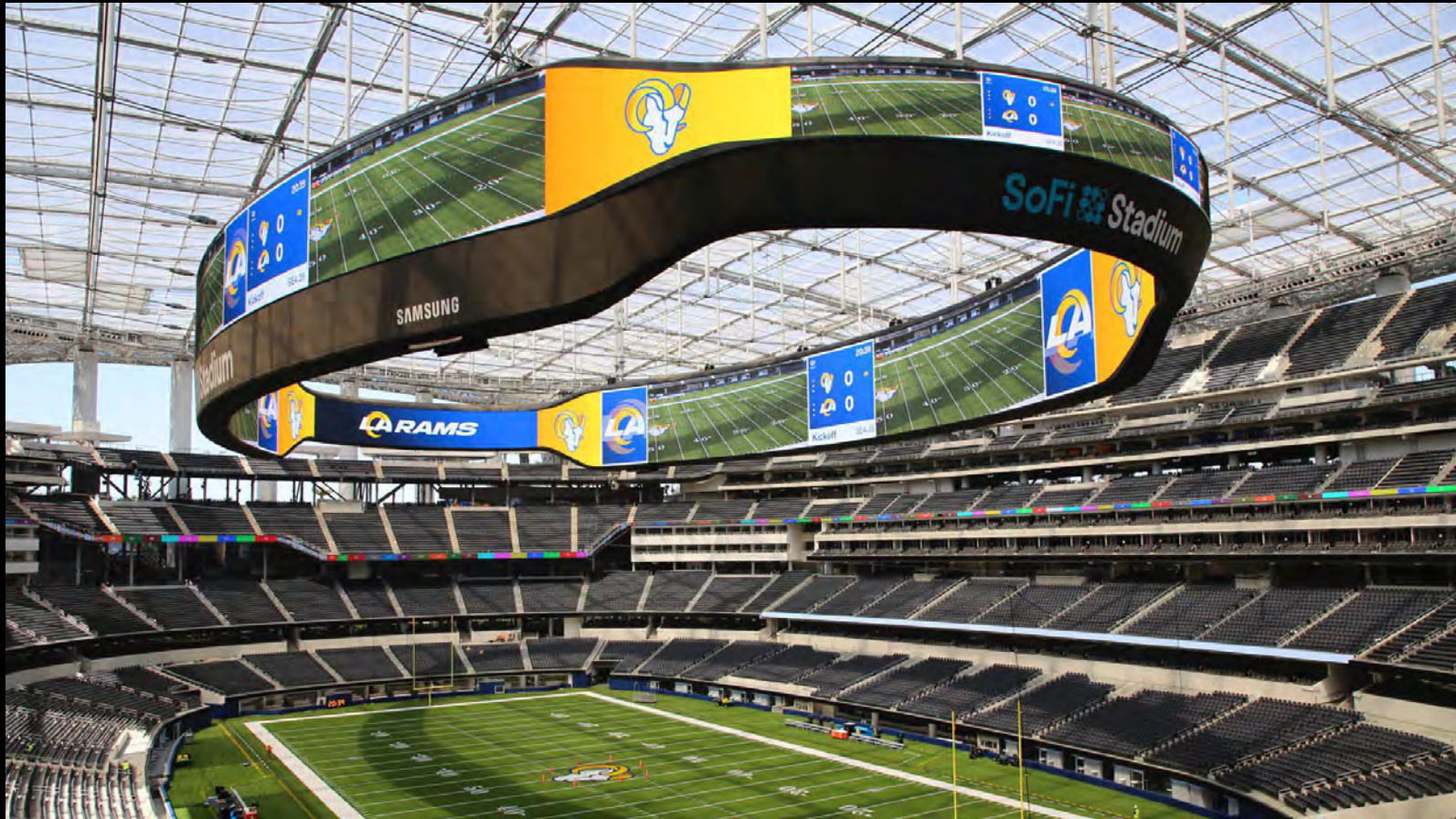
- * Surfaces around the source of the sound.

- * Air Volume



Theaters

Symphony Hall? Multi-purpose? Opera House?
Black Box? Broadway? Nightclub?



Stadiums

Announcing? Echoes? Crowd noise?
Pro sports? Concerts? Meetings?



Amphitheaters

Weather? Neighbors? External noise?



Arenas

Pro sports? Concerts? Meetings?



Convention Centers

Tradeshows? Meeting space?
Concerts? Lectures? Banquets?

SILENCE!

Please

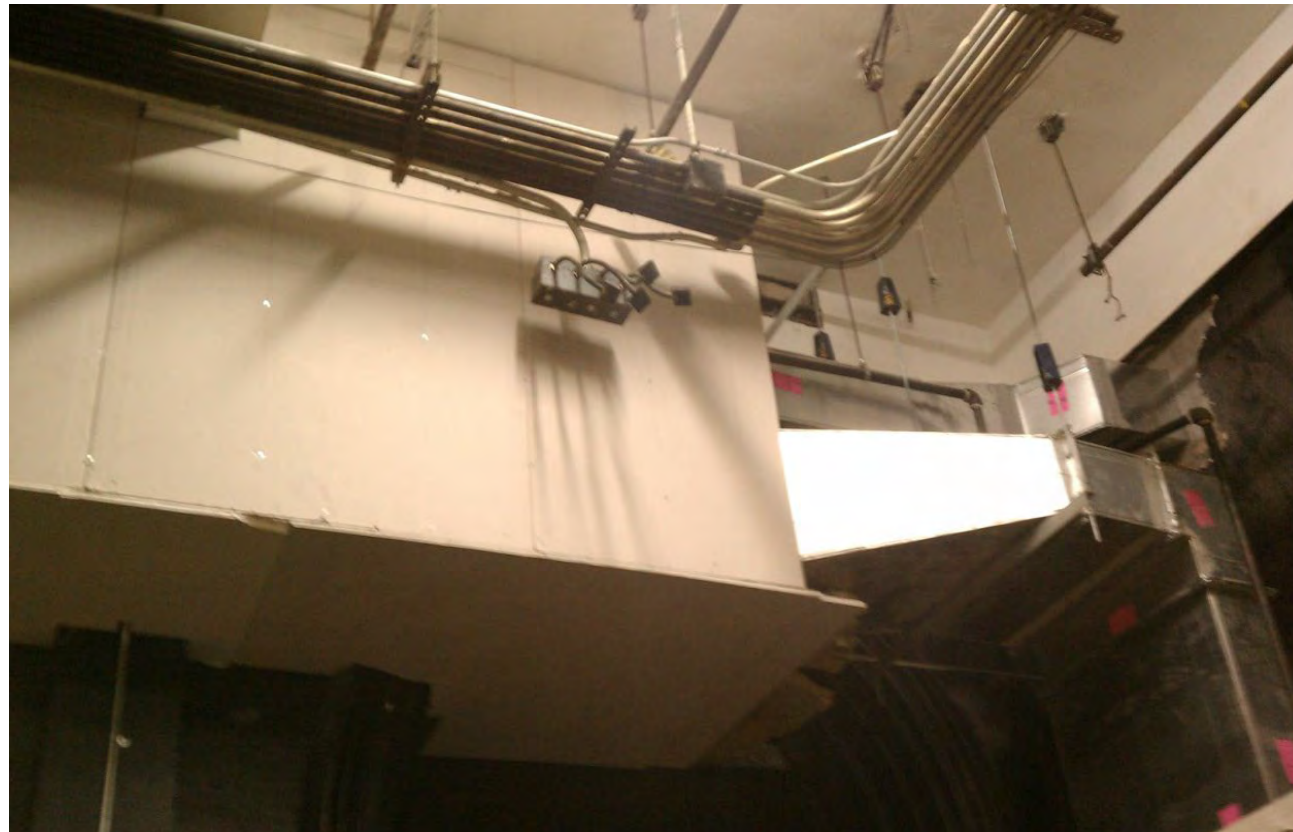
SILENCE?

Motors

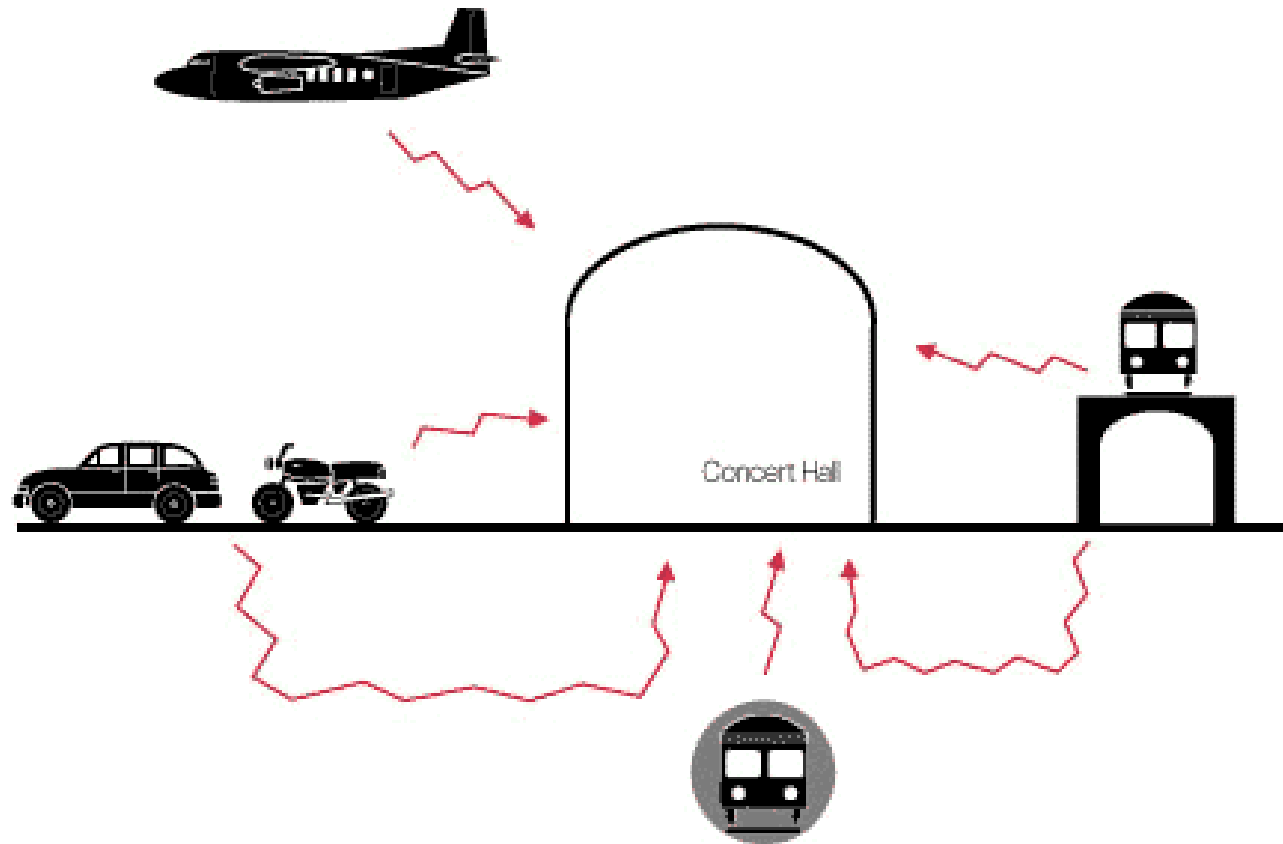
Fans? VFD's? Elevators? Tools?

Air flow

Distribution Size? Speed Direction??

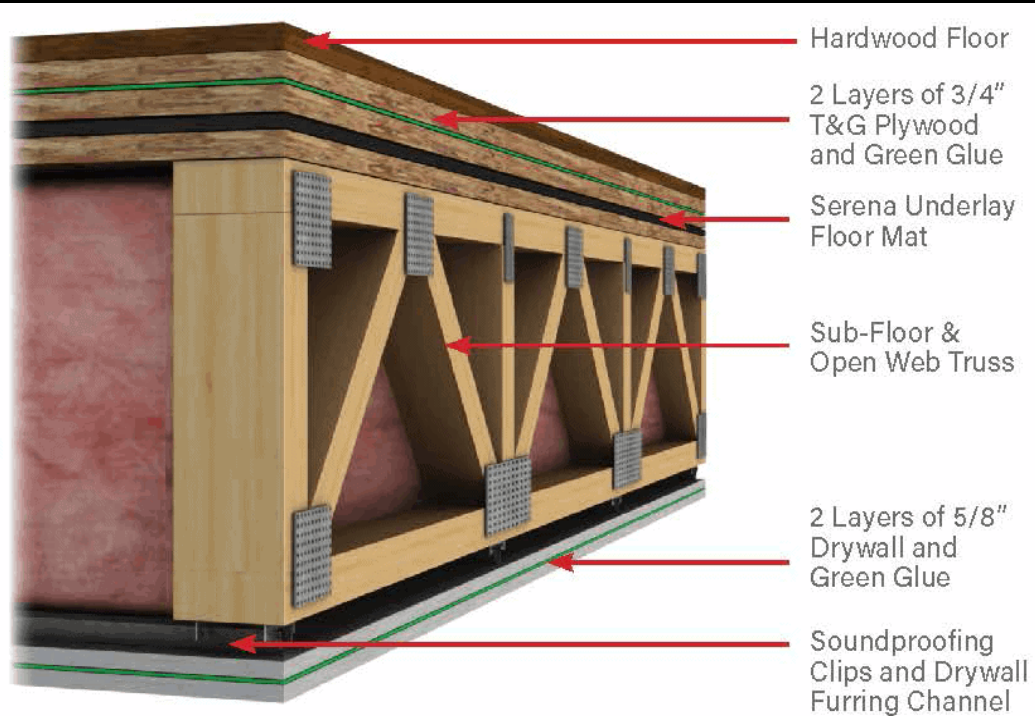


Sound Isolation and HVAC



Sound Isolation Issues

Sound Isolation Solutions



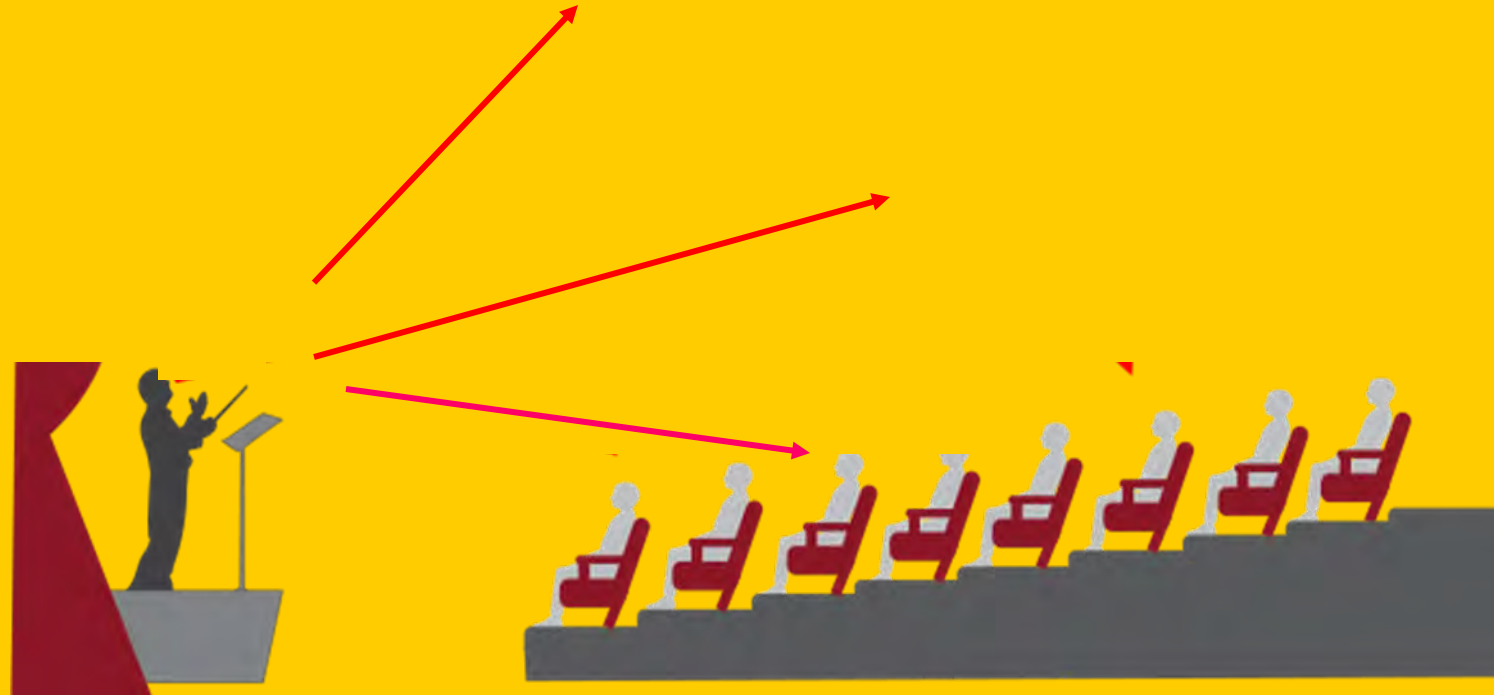
Estimated airborne noise

STC 70+

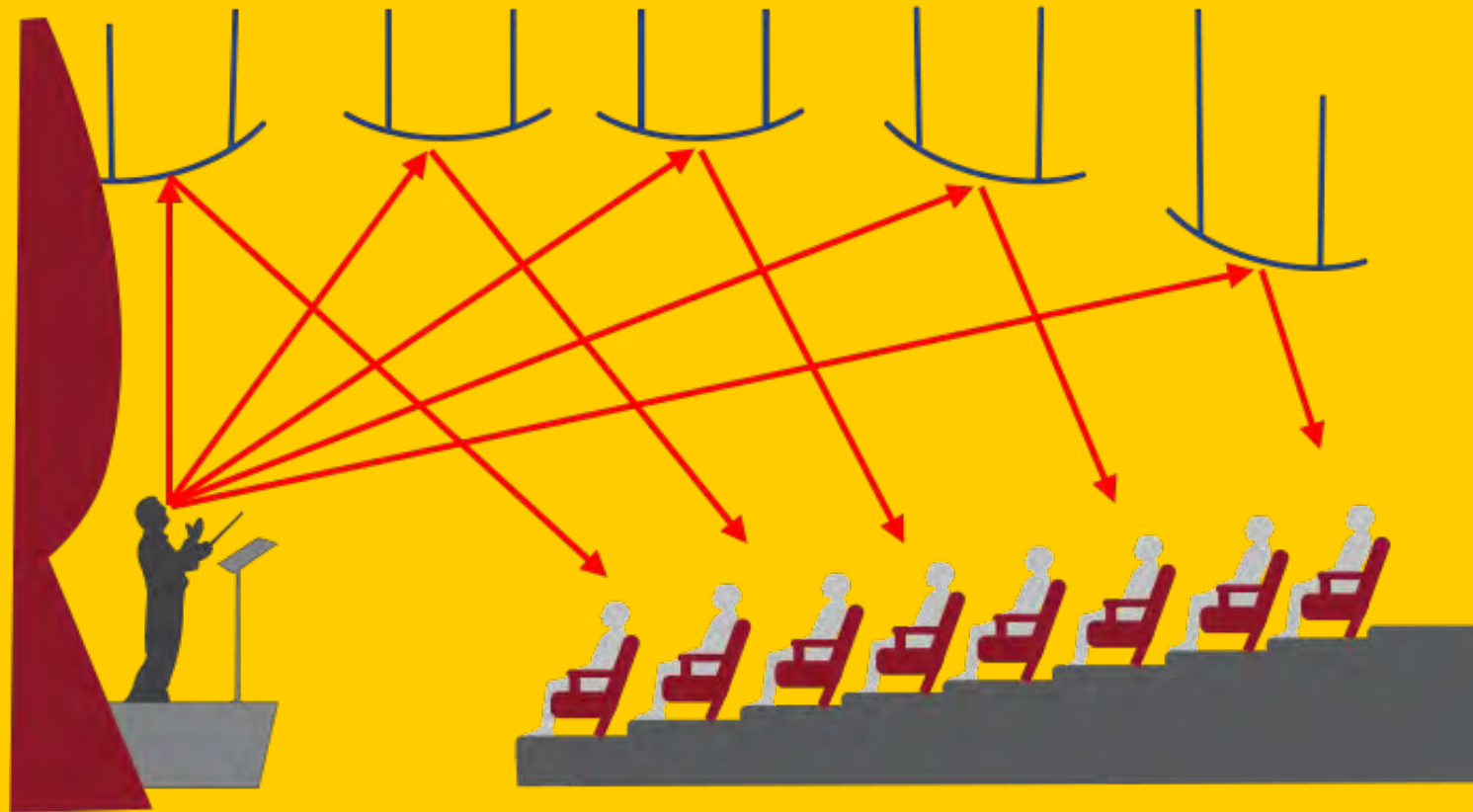
Estimated impact noise

IIC 62+



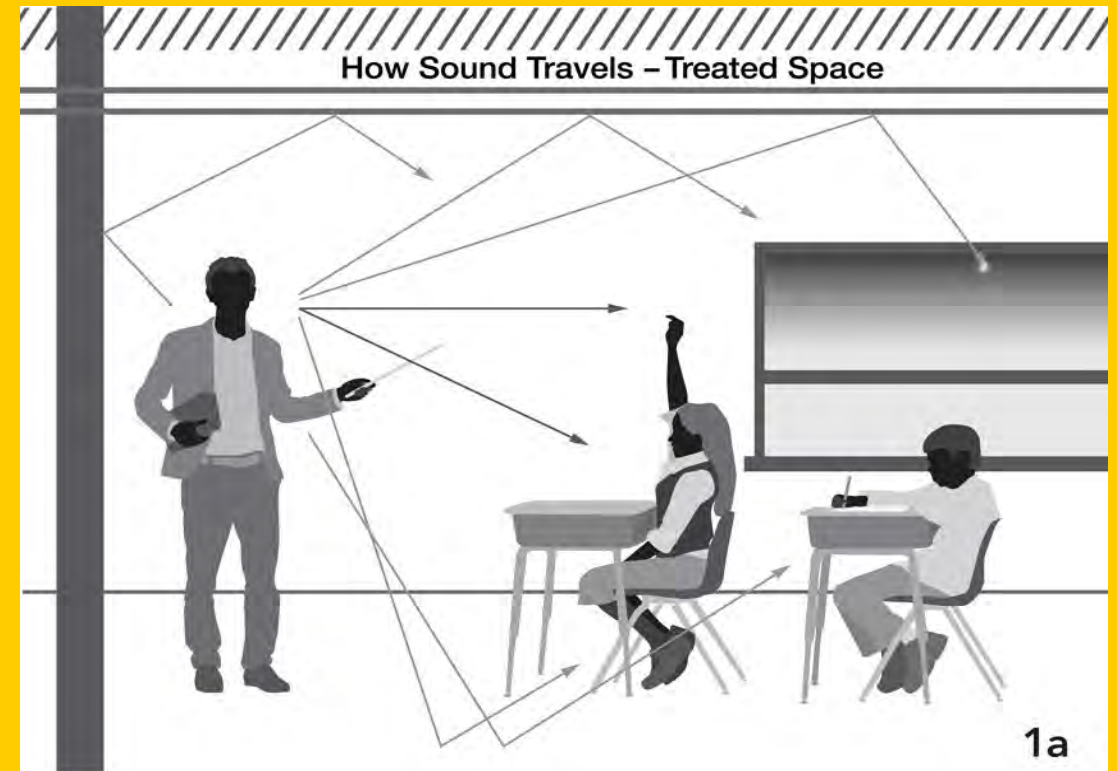
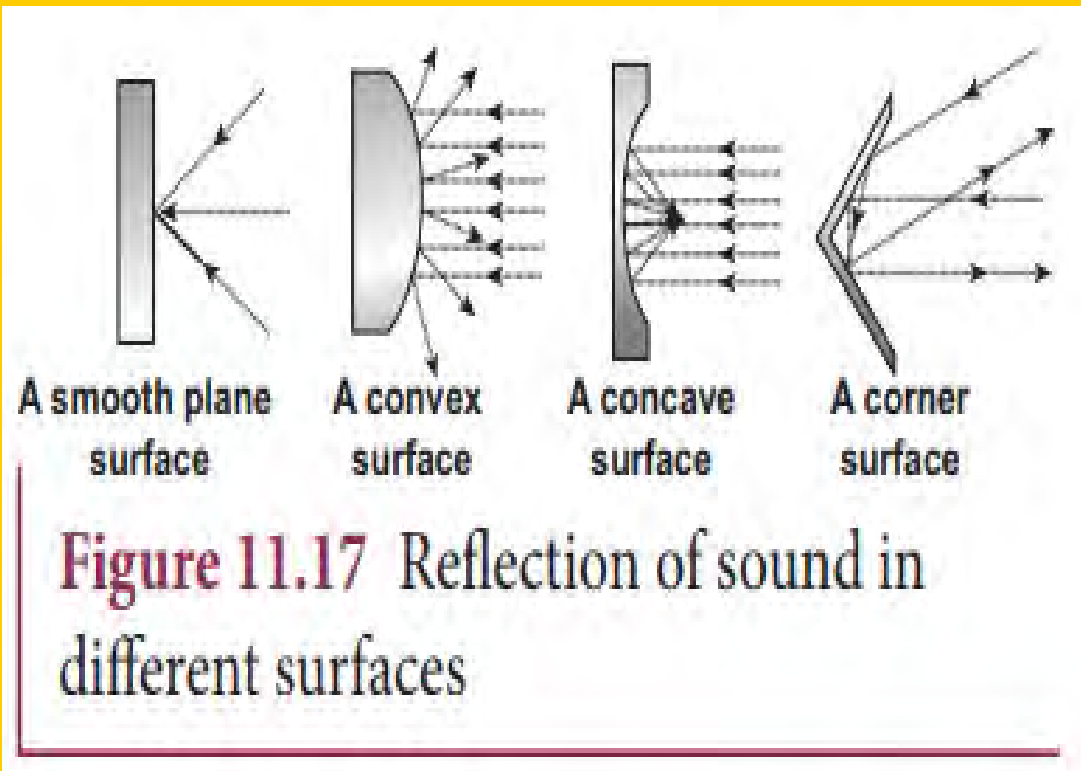


Sound travel without
acoustic treatment



Ceiling panels, stage shell and room walls
redirect sound to an audience





Ceiling panels, stage shell and room walls
redirect sound to an audience

Sound System Objectives

- * Provide adequate loudness
- * Provide clarity and speech intelligibility
 - * Provide tonal quality
- * Provide correct localization to the source



“STAGE” LIGHTING 101

Back Light



Down & Side Light



Front Light







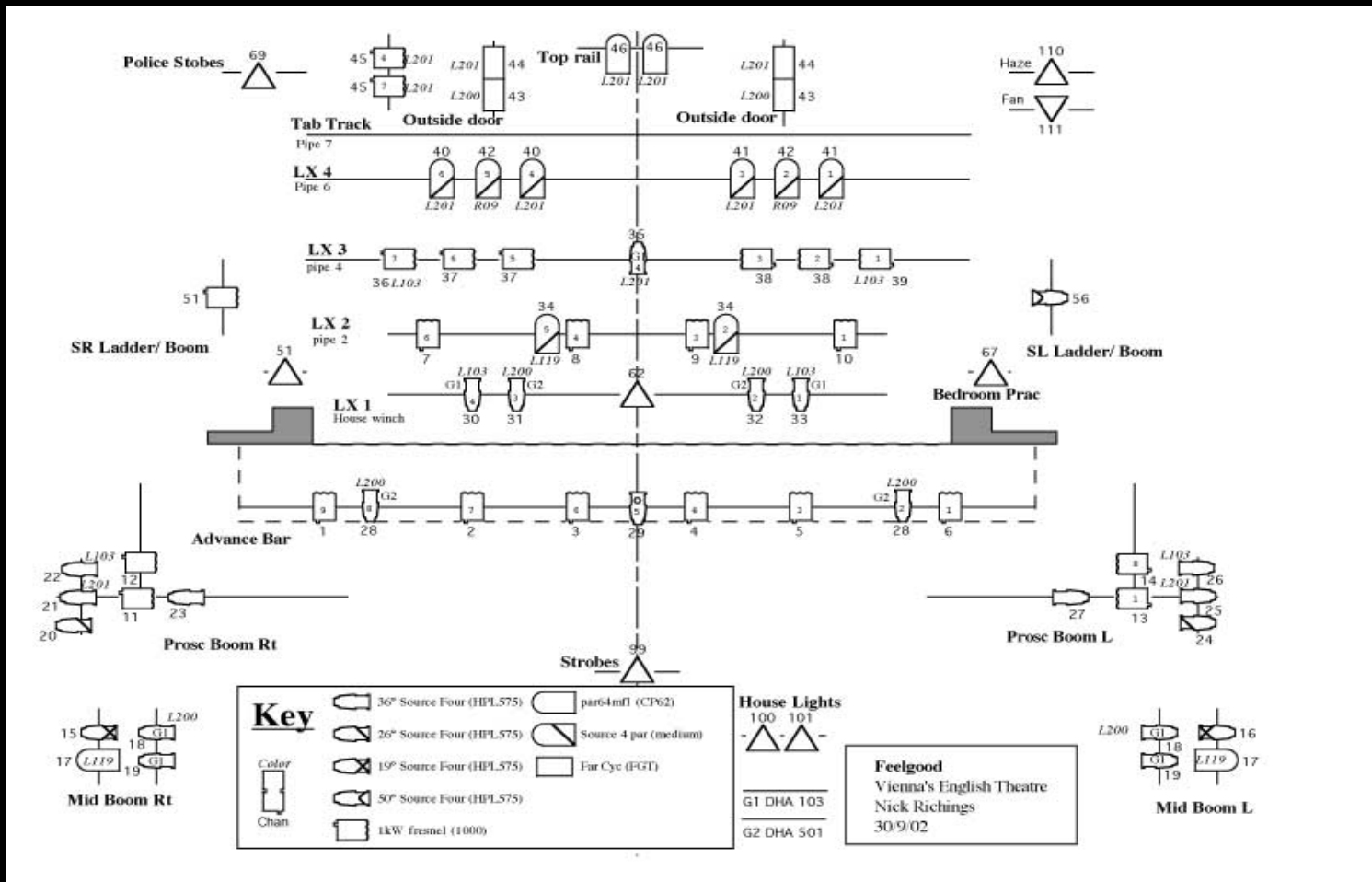
Stage Floors Impact Lighting?

Instrument Types

‘Wash’ v. ‘Profile’



Light “Plots”







LIFTS & LADDERS

101





Things that
make you go
“Hmmm....”









Just because you
could...

...doesn't mean you
should.

Fall ~~Protection~~ Arrest



Fall Protection is required by OSHA, in construction industry, when one or more employees have exposure to falls of 6 feet or greater to the lower level.

Exposure is engaged within 6 feet of an 'unprotected edge'

Horizontal Lifelines

Overhead - Running



Self-retracting
Lifeline

Vertical Lifelines



Personal Equipment



Full Body Harness



Shock Absorbing Lanyard 130 - 310 lbs Load
Capacity 6 ft long



Certified Helmet

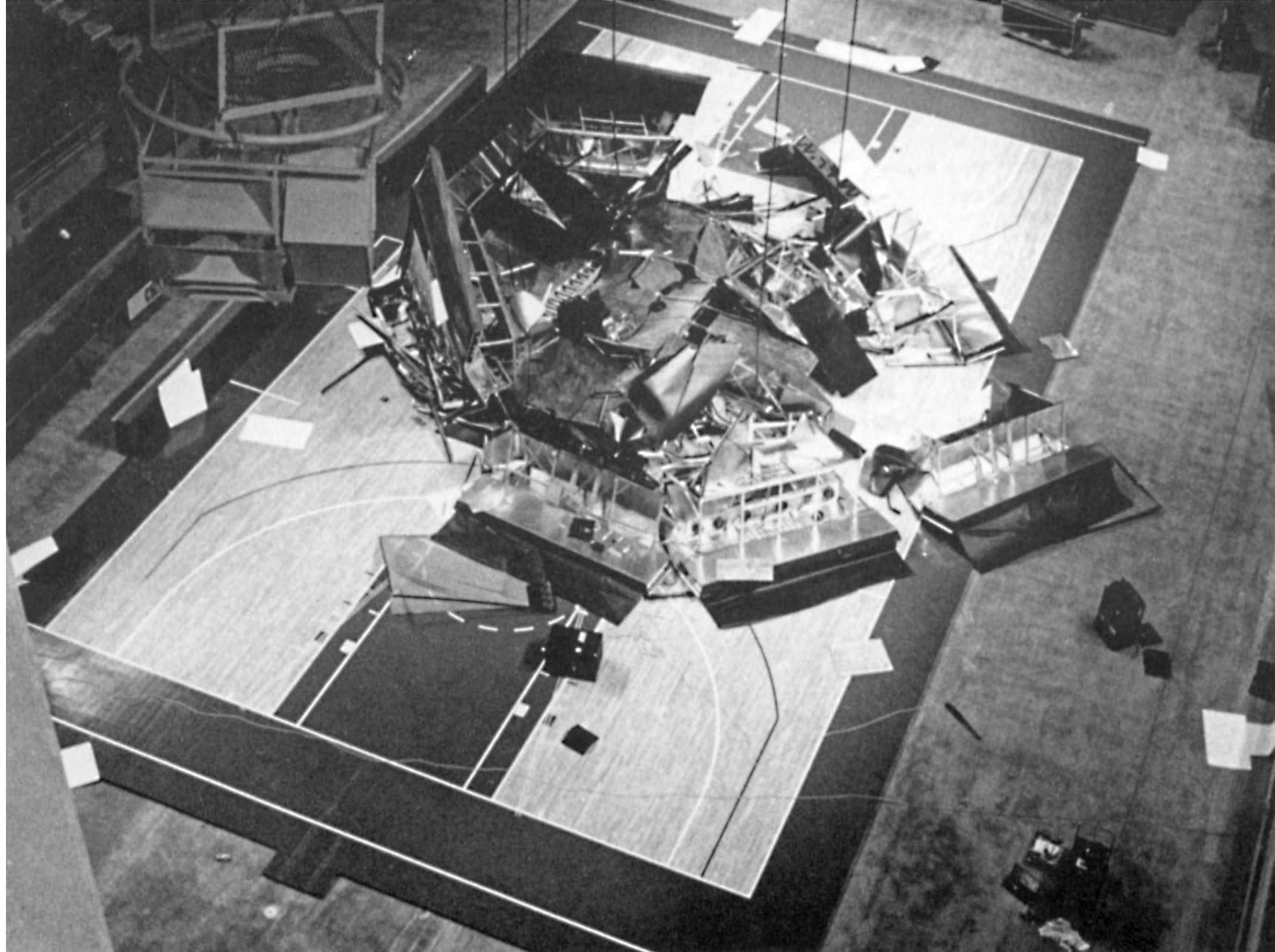


Self Locking
Carabiner 310 lbs
Load Capacity

RIGGING

101

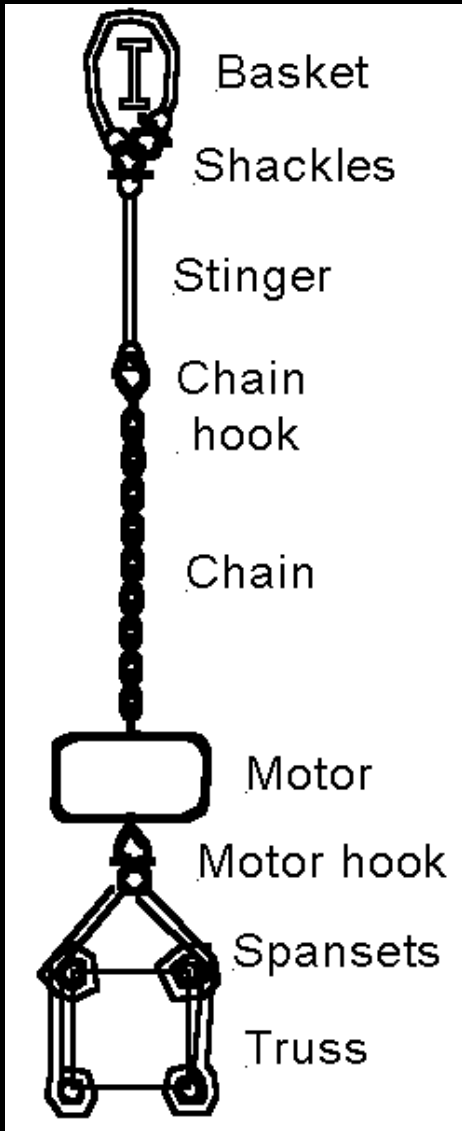






RIGGING

*A series of components
that suspend objects
overhead.*





(Yikes....)

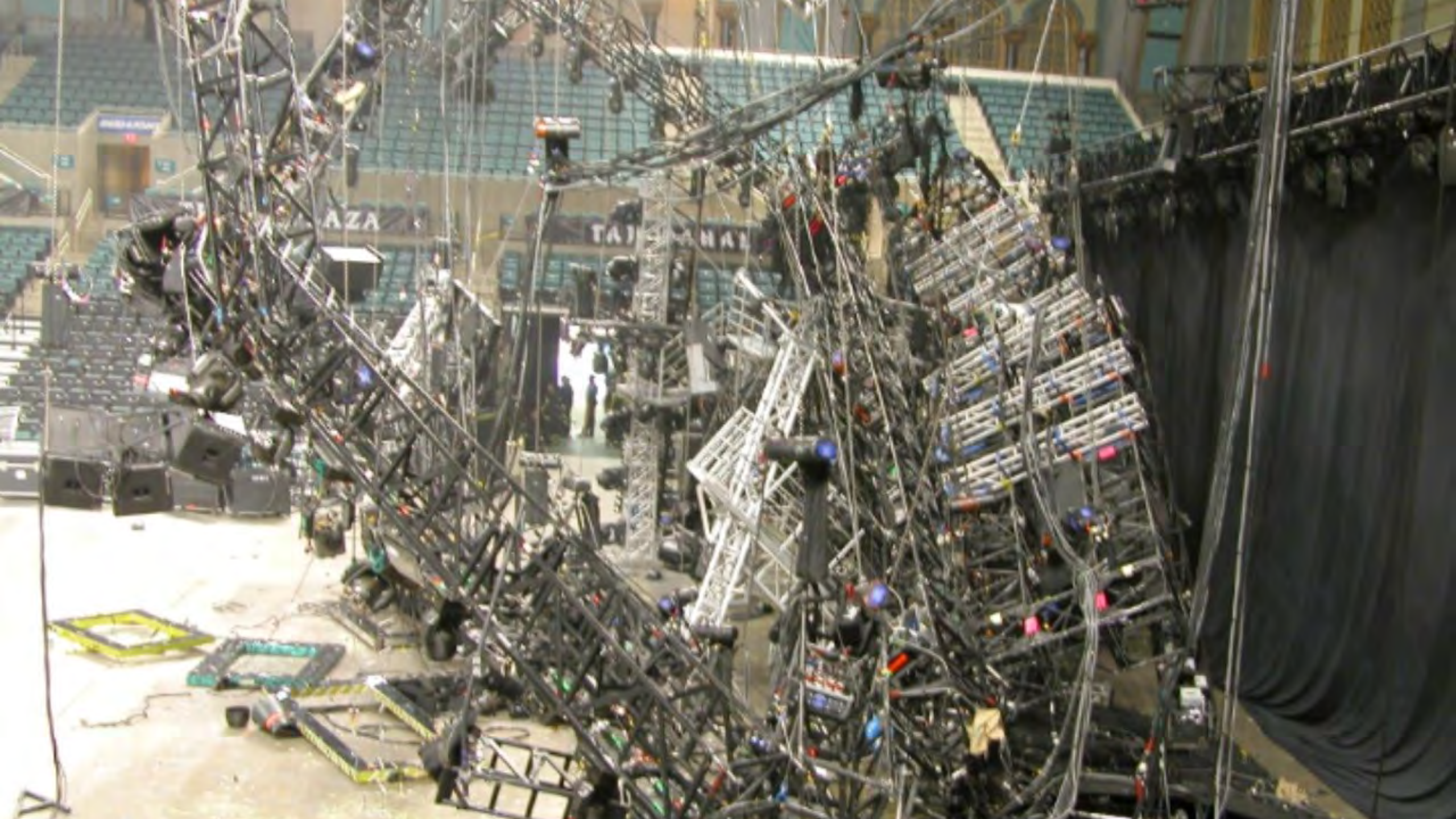
TWO BASIC RULES OF RIGGING:

Rule #1:

Don't let anything fall.

Rule #2

See rule #1.



Types of Forces



Tension

Forces which pull materials or objects apart.



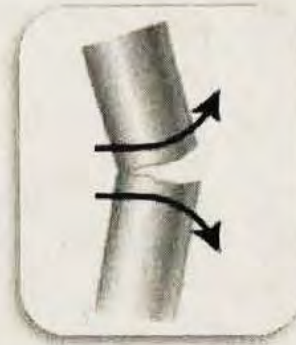
Compression

Forces which push materials or objects together.



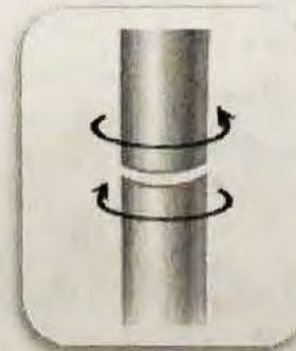
Shear

A sliding force where the object wants to slip apart parallel to the direction of the force.



Deflection

Objects bending under a load – always present in rigging.



Torsion

Twisting of an object due to an applied torque.

MORE RULES...

- * Everything has a useful life
- * Everything has a load limit

Chain Motors

The workhorses of our facilities





YouTube Theater, Los Angeles

Measure The Weight!

KPS

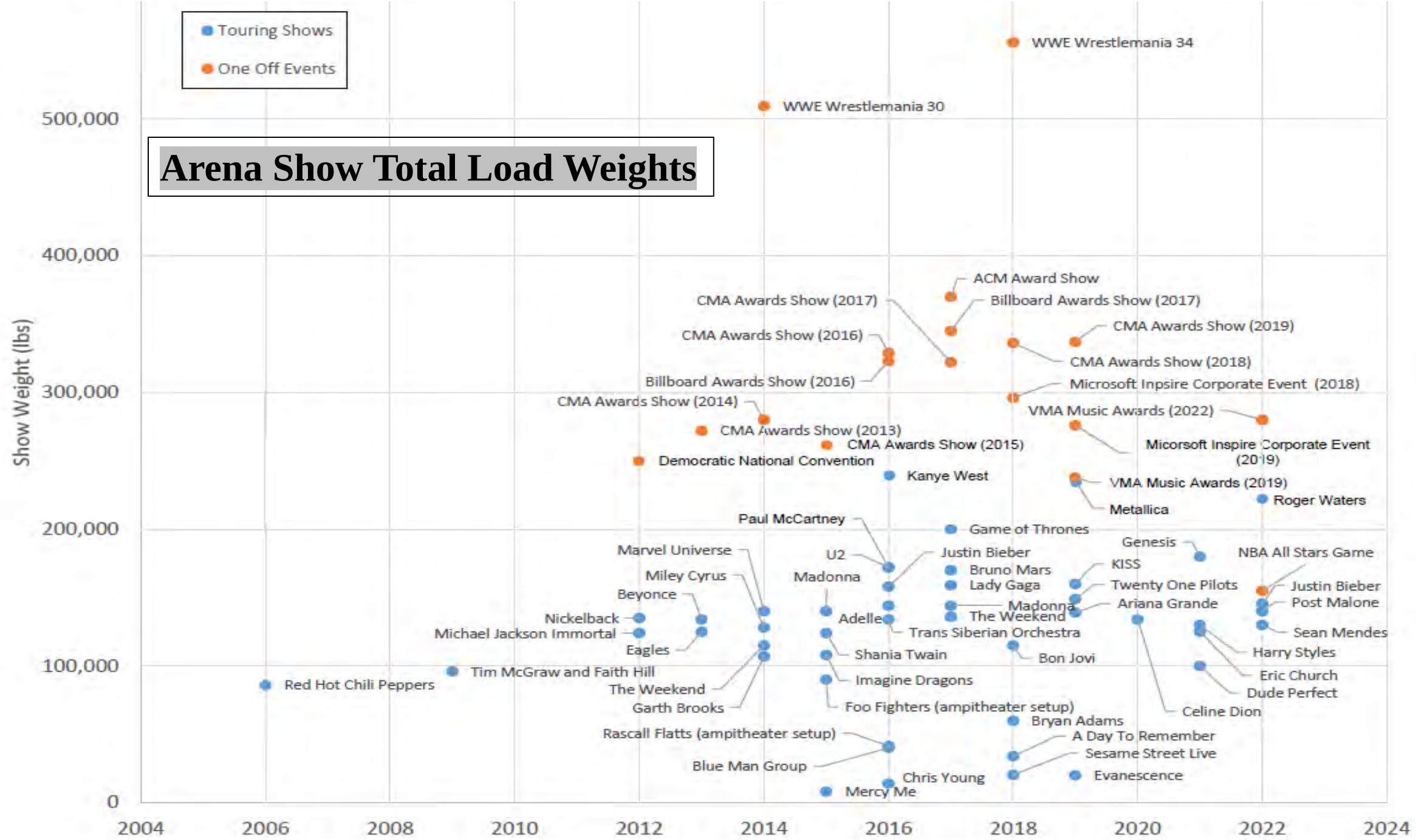
Unit of mass equal
to approximately
9.19 kilograms /
20.26 lbs



Digital Load Cell



Arena Show Total Load Weights





You're only as safe
as your weakest link...



What would YOU do???

1. You are in the middle of hanging a very large show on Saturday.
2. You get a call from your Technical Director at 2:00 PM that she thinks there is a problem with the rigging and a danger of failure.
3. There is a real time crunch in getting the show loaded in so the show can start on time so the show does NOT want to halt the load-in.
4. This is a sold out show that will bring a ton of revenue to your venue.

What would YOU do???

REDUCING THE RISK

- * Use competent people and train them.

“A competent person is someone who is capable of identifying existing and predictable hazards and has the authority to take prompt corrective action to eliminate them.”

REDUCING THE RISK

- * Clarify the scope of the employee's authority and back them if they say “no”.
- * Provide training-Ignorance is not a legal defense
- * Create an environment that allows an employee to admit when they are “in over their head”.

REDUCING THE RISK

- * Have equipment inspected and maintained.
- Maintain records of all inspections, repairs and training.
- * Use only load rated components
- * Know how much weight you can hang-exactly
- * Know how much weight is being hung.

REDUCING THE RISK

- * Have a written operations policy
- * Liability Insurance

REDUCING THE RISK

* Professional Resources

USITT/CITT

IATSE

OSHA

IAVM



Entertainment Certification Technician Program

<https://etcp.esta.org/>

The Chicago Flyhouse

<https://www.flyhouse.com/>

Sapsis Rigging

<https://www.sapsis-rigging.com/>

Don't ever forget...



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Thank you!

*Please complete the course
evaluation now.*